

# Hobbies

WEEKLY

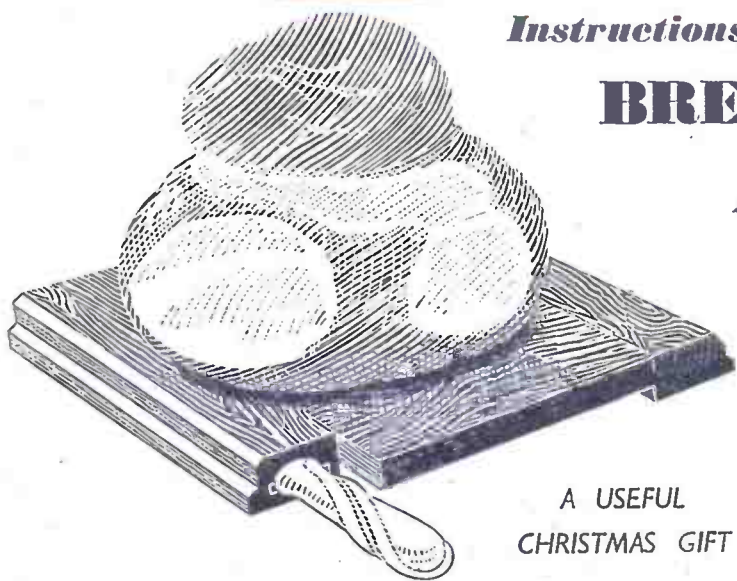


VOL. 115

NUMBER 2977

Instructions for making a

## BREAD BOARD AND KNIFE



A USEFUL CHRISTMAS GIFT

**T**HE illustration shows what a handsome present this knife board will make, but, of course, the actual appearance will depend largely upon the kind of wood used. We suggest walnut or beech, but walnut for preference.

**Figured Wood**

Excellent pieces of figured wood can be obtained from old pieces of furniture that have no further use. In any case, it is now possible to buy a greater variety of hardwood, and anything with a pleasing grain will answer the purpose.

Remember that the piece chosen

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must be hard, to avoid damage when cutting, and since it cannot be stained or coloured, the appearance will depend entirely upon the grain.

The bread knife will be purchased beforehand, and this will govern, to some extent, the size of the board. The sides must be slightly longer than the blade of the knife. The measurements shown will do for the average knife.

**Construction**

Cut the main piece from 1/2 in. wood and make sure that it is perfectly square. The sides (B) are cut from a similar piece of 1/2 in. wood. Pay particular attention to the direction of the grain. This is shown both in the illustration and by the arrows on the patterns.

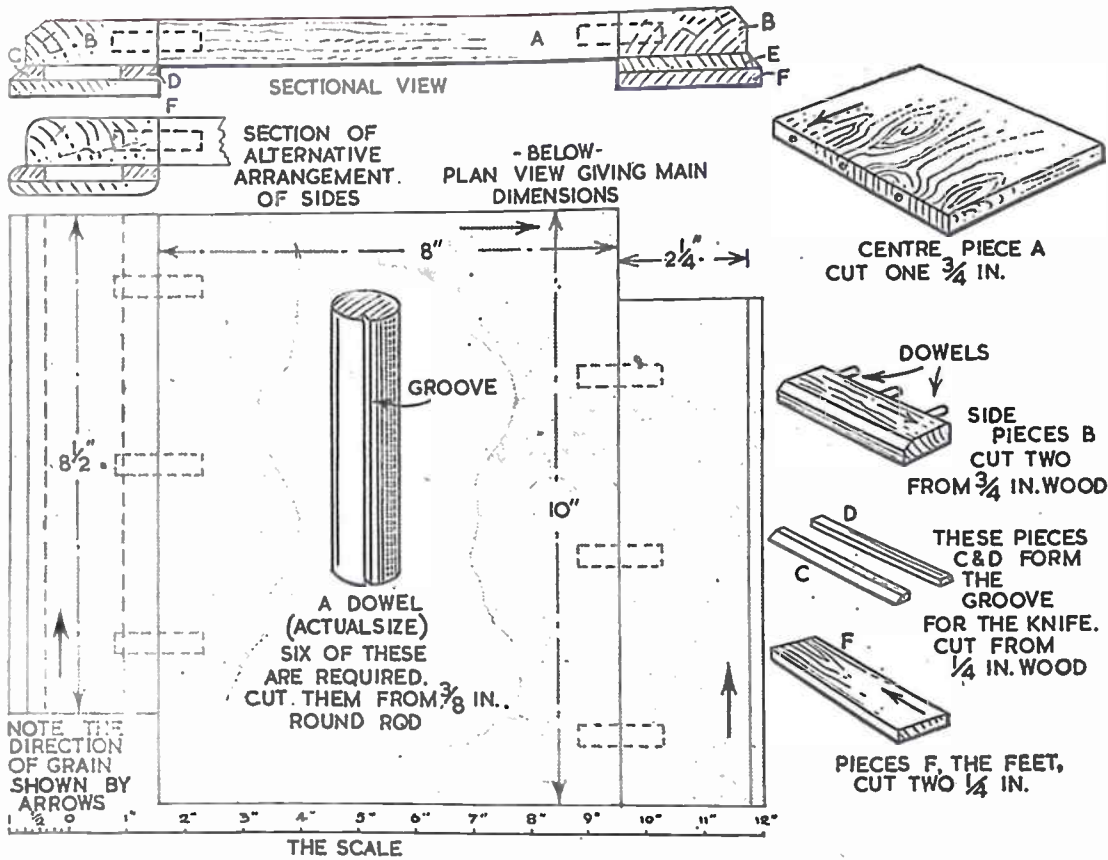
The sides (B) are joined to (A) by means of dowels cut from 1/4 in. round rod. The actual size of these is shown in the inset diagram. Cut a shallow V-shaped groove with a penknife as illustrated. This will allow the air and surplus glue to escape when the dowels are driven home.

Lay the three pieces together and mark the positions of the dowels. Extend the marks down the edge of the wood with a square and bore out the holes to a depth of 3/4 in. with a 1/4 in. bit. Make perfectly sure that the holes are

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THE MAGAZINE FOR MODELLERS, HANDYMEN AND HOME CRAFTSMEN





bored centrally. The outside edge of each side (B) can now be rounded or chamfered as desired.

The feet are cut from 1/4 in. wood and are made up as shown by the section and the illustration. The two narrow strips (C and D) form the groove that will hold the bread knife. Piece (E) on the opposite side is cut to the same size as (F), but one edge will be chamfered or rounded.

Piece (C) measures 8 1/2 ins. by 1/2 in. by 1/4 in., piece (F) measures 8 1/2 ins. by 2 1/4 ins. by 1/4 in. Any other measurements can be taken by using the scale shown at the foot of the drawing. Note that the small illustrations are not to scale.

#### Finishing

Finish off by glasspapering until the whole surface is as smooth as possible. Use glasspaper in grades of medium, fine and then flour paper in turn until the surface is satisfactory. Put the knife in position and then wrap carefully with transparent paper. A greetings card should be put inside before fastening off the wrapping. (M.P.)

### JOBS AROUND THE HOUSE

## A Tip on Taps

EVERYBODY at one time or another finds that they have a dripping tap in the house.

What a nuisance this is, and how often one finds that the plumber is too busy. Yet you need not suffer this wasteful nuisance. It is so easy to stop the drip, which is usually caused by a worn out washer.

#### Replacement

To replace a worn out tap washer turn off the main stopcock (this is usually found in the cellar), and when the water ceases to flow remove the tap cover. This 'hood' covers the 'works' of the tap so to speak. You will probably have to use grips to unscrew this, but do not forget to wrap a piece of cloth around it otherwise your grips will scratch the chromium plating. By the

way, this unscrews from left to right. Beneath this cover you will find a large nut which, when undone with an adjustable spanner will enable you to remove the inner portion of the tap. At the base you will find a plunger on to which the washer is screwed. Remove the old washer making sure that no portions are remaining in the bottom of the tap. Replace with a new washer an equivalent size to the old one. Re-assemble tap, turn on the water, and your tap will work efficiently and will not drip.

#### In Case of Emergency

Tap washers should always be kept in the house in case of an emergency. A card containing washers of various sizes can be purchased from your local ironmonger. (J.T.)

### FOR WINTER EVENINGS

# An Interesting Table Game

WITH the darker evenings here, readers will find the table game illustrated a pleasant relaxation in the home. It is played like billiards and bagatelle, with balls and cue, and provides opportunities for skill as well as pleasure. Construction is quite easy, as the dead accuracy necessary for some table games is not so important here.

#### Plywood Top

The table is made of plywood on an underframe of deal. Thickness should not be less than 1/2 in., a little more, say 3/4 in. would be better, as providing a

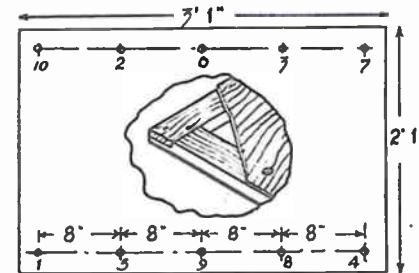


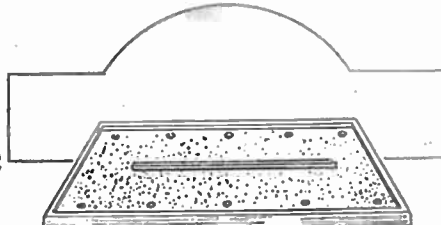
Fig. 1

more solid foundation for play. Choose a good quality piece of the plywood, as free from knots and shakes as possible, and select the best side for the top playing surface. A plan of the top is given in Fig. 1. Cut the plywood to dimensions given, run a line down each of the long sides, 2 1/2 ins. in from the edges, and mark off the spots at distances apart given in the drawing, for the cup holes into which the ball will drop.

Under each lay a spare piece of wood, as support while the holes are bored. These should be just 1/2 in. diameter. Glasspaper the rough edges of the holes to remove splinters, then prepare the underframe on which the board is to be mounted. This is made up of 1/2 in. by 3 ins. wide deal. It is a frame to the same dimensions as the board, joined together at the corners with a half lapped, glued and nailed joint, as shown in the inset detail. When the glue is quite hard, punch the nails down a little, and, as may be necessary, go over the surface with a finely set smoothing plane to level over, and provide a flat surface on which the board can bed down satisfactorily.

Glue the top surface of the under-frame, lay the board on top, and fix firmly to the frame with a few panel pins. Let be for a few hours, then go over the surface with the palm of the hand to test if any of the nails protrude slightly, and file off flat if any should do so. Finish the surface to a dead smoothness with fine glasspaper.

Prepare four edging slips of 1/2 in. thick wood, wide enough to extend above the board, 1 1/2 ins. when fixed. These are glued and nailed to the edges of the framework under the table. The corner joints can be butted together, but



To number the holes, as shown in the plan, Fig. 1, two alternative methods can be suggested. The numbers could be put in in black enamel (or white if you like) with a fine brush, or if the reader mistrusts his ability to do such a job neatly, with cut-out numbers from an old date pad, glued to the edging. If the latter, fix the numbers after staining, and then clear varnish over all.

#### Cushioning Strips

Cushioning strips are to be fitted to the inside faces of the edging, against which the ball can rebound, as owing to the presence of a middle barrier, seen in the drawing of the finished article, no ball can be propelled in a direct line to any hole, but only by cannoning off the cushions.

For these strips cut four of 1/2 in. wood, 1/2 in. wide, and long enough to reach the length or width of the table. These are covered one side with strips of rubber, such as can be cut from an old motor car tube. Roughen one side of each rubber strip slightly with glasspaper and stick to the wood with glue. Cover each strip with some not too thick material, all over, back and front as shown in detail (B) in Fig. 2. Quite a suitable material would be fine cloth or green linen. It should be stretched tightly over, and either glued to the back of the wood strips or secured with zigzag stitches.

Now fix the cushioning strips all round with glue, as in the sectional detail (A) in Fig. 2. For the middle barrier, already referred to, cut a 1/2 in. by 1/2 in. wide strip of wood to length given at (C) in Fig. 3. To the bottom edges of this, drive in a couple of nails, leaving about 1/2 in. of each nail sticking out below. File off the heads, and the remaining pins, as we may call them will act as dowels to help fit the barrier in place on the table, a corresponding pair of suitable holes being bored through the table top for that purpose.

Prepare two cushioning strips, as already described, but this time the same length as (C), then place each side of the barrier strip, as at (D) (one only shown) and glue to it. The ends of the cushioning strips should be neatly stitched over to hide the wood. Fix the completed barrier strip with a touch of glue.

To play the game, provide a couple of

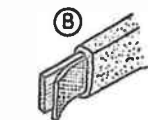


Fig. 2

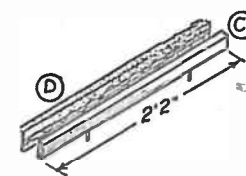


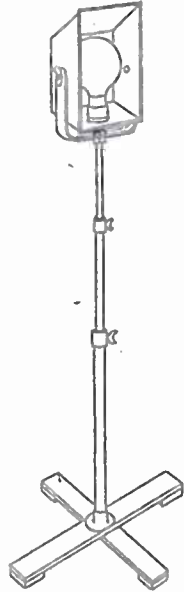
Fig. 3

if they can be neatly mitred, a much neater effect will, naturally, result. The extreme corners should be very slightly rubbed off with glasspaper.

#### Light Stain

Now give the whole a coating of light stain; spirit stain would be preferable, as less liable to raise the grain. A pleasing effect would ensue if a green stain were employed on the plywood top, with light oak for the edging, but is not, of course, imperative. Stain the interiors of the cup holes black, or paint with enamel, to render them more conspicuous. When all is quite dry, apply a coat of clear varnish to the edging, tops and outside, and carry the varnish on the inside edges to about 1/2 in. down from the top.

# A Useful Floodlight for Garage or Workshop



Obtain two pieces of wood 2½ ins. wide by ¾ in. thick, one 18 ins. and the other 13 ins. long. To each end of the shorter length, screw and glue a block of wood to form a foot 2½ ins. by 2 ins. by ¾ in. thick. To each end of the longer piece, fix blocks 2½ ins. by 2 ins. by 1½ ins. thick. In the centre of the shorter leg, bore a hole to take a stout screw and fix the two legs together with a thin spring washer, the shorter leg fitting underneath the larger one.

The pillar is built up from two short sections of iron tube with a length of steel rod. Obtain a length of 1 in. diameter tube 2 ft. long, threaded at both ends. Any hot water engineer or plumber will sell an odd piece of water pipe and cut the threads for a small sum. To the bottom end of this tube fix a flange and screw it to the centre of the wooden legs. It may be necessary to bore holes in the flange if the existing ones are not suitable. On the other end of the tube run on a socket, drill and tap to take a ¾ in. winged bolt.

WHEN carrying out repairs to the car or renovations in the home, a powerful light is often required which can be so adjusted as to shine right on to the job. Such a lamp can easily be made from odd pieces of metal tube fixed to a wooden base, and a 100 watt bulb with its housing attached to the other end. The base is made to fold up when not in use.

Select another 2 ft. length of tube that will just slide down the centre of the 1 in. pipe. This forms the middle section, but it may be necessary to rub down this length with glasspaper to make a good fit, filing off any high spots. Thread the top end and run on a socket, drilling and tapping to take a ¾ in. winged bolt.

The top length of the pillar is made from a 2 ft. piece of iron rod, selected to

slide easily down the middle section tube. The top end of this rod is threaded and fitted with two nuts.

Obtain a piece of ¾ in. thick mild steel, 1 in. wide by 18 ins. long. Bend this to form the cradle of the lamp-house as shown. Drill a hole in the centre of the bottom, so that this cradle can be clamped in position on the top section of the pillar by means of the two nuts. In each arm of the cradle drill a ¾ in. hole ¾ in. from the top edge.

The lamp-house is made from a baking tin. Choose an oblong tin of the type used for baking bread or cakes, making sure that the inside surface is well 'tinned'. The tin should be about 4 ins. deep. At one end cut a hole 1 in. in diameter to take a standard type bulb holder. This end of the tin will have to be slightly bent, so that the bulb when fitted will be parallel with the back of the lamp-house. In the centre of each side of the lamp-house, drill a ¾ in. hole, and fix a nut and bolt so that the threaded end juts out from the lamp. Pass these bolts through the holes in the carrier and secure with winged nuts and spring washers.

Finish the lamp by painting all surfaces except the inside of the lamp-house, and wire up the holder. If the lamp is to be used in a damp atmosphere, 3-core rubber covered electric wire should be used, and all metal parts earthed. (A.C.F.G.)

# An Interesting Table Game

(Continued from page 115)

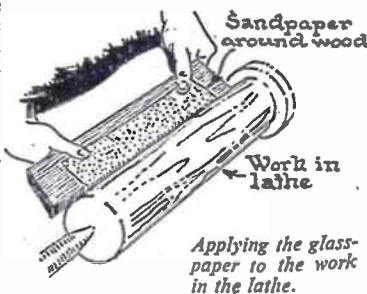
balls, ¾ in. diameter and two cues, the latter 18 ins. lengths of round wooden rod. Play from hole to hole as numbered, the winner being the one going round with least strokes, as in golf. Strokes can be scored on a cribbage board, or a simple scorer of the home-made variety. Readers will see for themselves that a fair amount of skill will be needed to manipulate the balls into the desired holes. (W.J.E.)

## WORKSHOP HINTS AND NOTES (20)

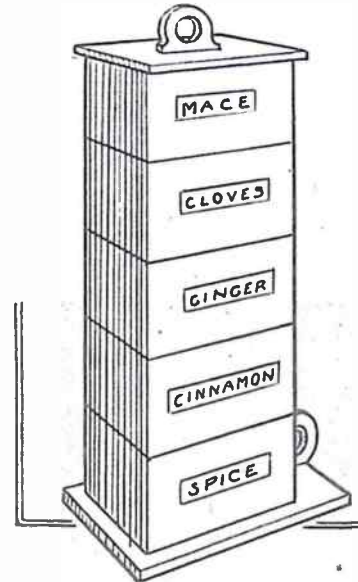
### A Hint on Turning

QUITE a number of fellows have a small lathe and one of the first things they learn to turn is a plain cylinder. The work is first planed to approximate shape, rough-turned with a gouge and then smoothed with a turning chisel. A wipe over with glasspaper completes the job. Such a cylinder may be more or less true, but if required for making rollers for printing and similar home crafts, it will probably be found to be somewhat 'out'.

There is a very simple remedy. Just wrap a sheet of glasspaper round a straight length of wood as shown in the sketch, and apply to the work. (328)



# A Spice Box for the Kitchen



made as one, as shown in Fig. 1, and afterwards sawn across in sections, each section a separate box. Cut the four sides to length, and form a rebated joint to make into tubular form, as at (A). Note the width of the short sides. Using ¾ in. thick wood, these will be 2½ ins. long, of course, the long sides being rebated at their edges to half thickness.

### Dividing the Tube

Glue together and nail with panel pins or fine fretwork nails. When hard, square lines round the wooden tube to divide it into five parts. When nailing, by the way, space the nails to suit the divisions, about three to each division will be enough. Place a piece of medium glasspaper on a flat board, and then rub the divisions, as sawn off, on the glasspaper to smooth the edges. It is as well to add, perhaps, with regard to the job of sawing the tube into sections, that the easiest method is to saw across the long sides first, then the short ones, and to use a tenon saw with fine teeth, if possible.

Some of the ¾ in. wood can be used to make the bottoms of the boxes. Leaving the box which is intended to be the

ANY housewife would welcome this useful container, quite invaluable in the kitchen. It incorporates five separate boxes for spices, a number that can be increased if desired, most of those necessary for cooking and flavouring. Altogether a valuable asset to any cook.

### Wood

Fretwood, ¾ in. thick, can be used for its construction throughout, but economy in such wood can be easily effected by using ¾ in. deal for the boxes, leaving only the base and lid to make in fretwood. The whole five boxes are first

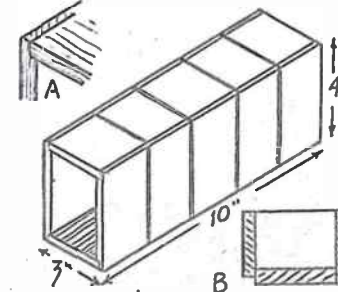


Fig. 1

lowest one alone, as this is to be glued to a base afterwards, cut a bottom for each of the remaining four boxes. Make them a close fit, and then glue and nail in place, letting only half the thickness of the wood in the box, the other half acting as a lid for the box to be immediately under it, as at (B).

### The Base

Cut the base from the fretwood, to dimensions given in Fig. 2 (C), and glue the box (the bottomless one, of course) to it where indicated by the dotted outline. A few small nails can be added, driven in through the base part, under-

neath. Cut a piece of fretwood to the size given at (D), and saw it to the handle shape depicted. This is then glued in the angle between box and base, with a couple of small brass screws, well countersunk underneath. This simple handle must be securely fixed, as the whole article is lifted by it, and it would prove annoying if it broke away and the spice boxes were scattered with their contents over the kitchen floor.

### Making the Lid

A lid for the top box is now required. Cut this to cover the box, and overlap a little, as at (E), and cut a second piece of fretwood, just a nice fit inside the box. This piece (F) is glued to the underside of (E), and acts as a rim to keep the lid in its place. To the lid an ordinary metal knob can be screwed, or a handle piece, shaped as at (G), and cut from fretwood, glued and screwed on. Perhaps a neater fitting results if the handle is provided with a tenon, and a mortise slot cut in (E) (as shown in diagram) for its reception.

The whole should now be well glasspapered. Take off the sharp corner angles of the pile of boxes with a file, giving a neat effect. See each box drops comfortably into the one below it. A smooth easy fit is desirable here, and a little careful glasspapering may be needed for satisfactory fitting. The fingerhole in the handle of the base should also be rounded off to provide a comfortable grip.

For finishing, the completed article would look nice if white enamelled, but none of the enamel must be allowed to creep between the boxes. Alternatively the whole could be just varnished, with a preliminary staining if preferred. The titles to denote the contents of each separate box could be neatly printed on stout white paper, and stuck on with a good tube adhesive. It would be a good method here to apply the titles after staining, and then to clear varnish over the lot. (W.J.E.)

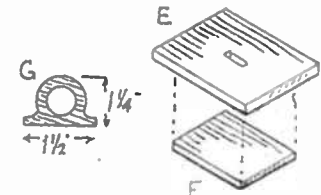


Fig. 3

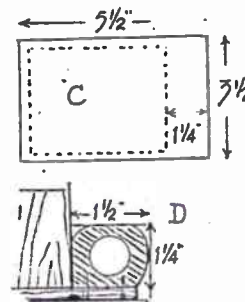


Fig. 2

# Resistors—Colours and Tolerances

It is apparent that some constructors are puzzled by the colour coding of resistors, and also by the values which are specified. Values of 470,000 ohms, 220,000 ohms, 33,000 ohms, and so on, are frequently seen in circuit diagrams, and any beginner may be excused if he supposes that these 'odd' values are essential, and that 'round' values of 500,000 ohms (.5 megohm), 250,000 ohms (.25 megohm), 35,000 ohms, and so on, would be unsuitable. Actually, the latter would normally be satisfactory. As will become clear, some of the odd values seen exist primarily because colouring is simplified for the manufacturer. A 33,000 ohm resistor is a good example of this—body, tip, and dot are all one colour (orange).

Frequently, then, suitable resistors may already be in hand, as will be explained. In addition, it is suggested that those who are puzzled by the colour code should study this, since it is actually quite straightforward. Nevertheless, from time to time receivers fail to operate because resistors of wrong value have been wired in. The error is usually one in reading the correct number of noughts.

## The Colour Code

Small carbon resistors are normally of one of the types illustrated. When the resistor is of the kind shown at (A), the body colour is read first. The colour of the tip is then read, followed by the colour of the dot. With resistors of the type shown at (B), the colours of the rings are simply read off from the left, when the resistor is held as shown.

No possibility of confusing the 'Tolerance' ring or end colour with those giving the resistor value exists, because this colour will be either silver or gold, neither of which are employed to indicate the resistance value. If gold is used, the resistor is within 5 per cent of its rated value; if silver is used, the value will be within 10 per cent of that indicated by the coding. If no tolerance ring or end colour is present, then the actual value of the resistance is within 20 per cent of that given by the coding. For example, a 1 megohm resistor with the gold marking would have an actual value of from 950,000 to 1,050,000 ohms. If it had the silver marking, it would lie between 900,000 and 1,100,000 ohms. If no tolerance were given, it would lie between 800,000 and 1,200,000 ohms. This shows, then, why values such as 2.2 megohm, when seen, need not be adhered to—a 2 megohm, or

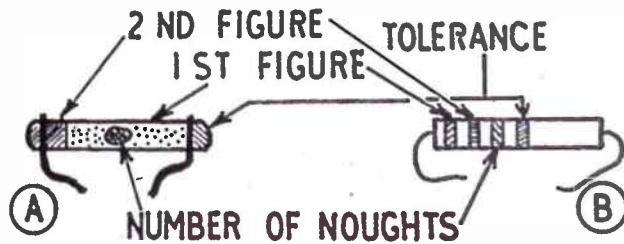
2.5 megohm, resistor could be used, if to hand.

The colour code is as follows:—

Black 0.	Green 5.
Brown 1.	Blue 6.
Red 2.	Purple 7.
Orange 3.	Grey 8.
Yellow 4.	White 9.

These can easily be memorised.

The first colour read off as described gives the first number; the second colour gives the second number; the last colour gives the number of noughts. Examples: Red, Green, Orange—25,000 ohms. Red, Black, Green—2,000,000 ohms (2 megohms). Brown, Brown, Brown—110 ohms. Yellow, Purple, Yellow—470,000 ohms.



## HOW RESISTORS ARE CODED.

Odd values such as 470,000 ohms, therefore, arise because manufacture is simplified by reducing the number of colours. A .5 megohm resistor (Green, Black, Yellow) would be suitable. In some circuits the symbol 'K' is seen. This indicates thousands of ohms. For example, 47K is 47,000 ohms. A megohm is 1,000,000 ohms. Therefore, for example, values variously indicated as .5 megohm, 500,000 ohms, or 500K are all the same.

## Wattage

In battery receivers, and most circuit positions in mains sets, the wattage dissipated is small. Accordingly, 1/4 watt resistors are usual. If to hand, 1 watt resistors can be used. Where larger wattages are essential, this is normally indicated in the circuit or component list. The wattage dissipated in a resistor can be calculated by multiplying voltage by current (in amps.). For example, 30 V is dropped by a resistor, and 10 mA is flowing. Since 1,000 mA equals 1 amp., 10 mA is .01 amp.  $30 \times .01 = .3$ .

Therefore the power dissipated is .3 watt, and a .5 watt resistor would be suitable.

When more convenient, the wattage dissipated may also be found from either of the following calculations: Voltage<sup>2</sup> or Current (in amps.)<sup>2</sup> Resistance or  $\times$  Resistance.

## No Need to Worry

Normally, the constructor will not need to concern himself with the wattage dissipated in any resistor, since this will have been looked into by the circuit designer. It is necessary to guard against using resistors of smaller wattage than those specified, or the resistor is likely to overheat and break down.

Watch for more articles by our Radio Expert

# DRAWING FOR REPRODUCTION

THE time may come when it is necessary for you to make a sketch for reproducing in some periodical, possibly this one, or, perhaps, you would like to try drawing for the press. If so, the following hints on what is called 'line work' will help.

Uncoloured pictures in periodicals are produced in one of two ways, either by (1) the half-tone block and (2) the line block. The former as the

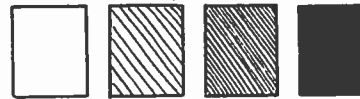


Fig. 1—How the pen worker gets different tones

name implies is capable of showing half tones, i.e. areas that are neither solid black or pure white. These are found in photographs and wash drawings, and so the half-tone block is used for their reproduction. Line blocks, however, only reproduce lines and solid blacks and so can be used for pen and ink sketches.

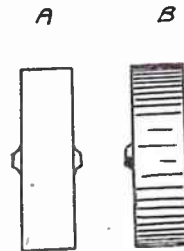


Fig. 4—How the end view of a wheel (A) can be given an appearance of roundness by shading top and bottom (B). Other round surfaces can be treated in this way

The half-tone block is made up of a huge number of minute dots, the size of which over any given area decides the tone of that part. A line block is just an embossed rendering of the sketch in question. It is on metal and the lines of the original appear as raised ridges. Indeed, a line block looks as much as anything like the familiar rubber stamp. Passing through the printing machine, ink is taken on these ridges and thus the picture is pressed on to the paper.

In spite of the fact that only lines can be used in this process, it does not mean that the artist can only employ what are generally called 'outlines', for by the careful use of marks at differing distances apart, he can produce a perfectly

satisfactory illusion of shades of one kind or another.

Thus there is for the line worker a choice of pure white, solid black and a whole range of intermediate tones made up by how he places his lines. Fig. 1 makes this clear. Note how pure white is just an absence of line and that the final shade on any part deepens as the lines covering it get nearer together.

## The Born Pen-Worker

It is the careful and intelligent use of the shading lines that shows the born pen-worker. Some quite good artists

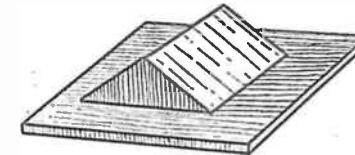


Fig. 2—Showing how the lie of surfaces can be suggested by taking the shading lines along the surfaces

never get the knack of shading with pen lines. These have what is known as a 'pencil hand' and can only think of shades in gradually merging tones. But for making handman's drawings, outlines with a little shading will often see you through.

When shading over an area pen lines should follow some definite scheme, not



Fig. 5—An appearance of relief can be secured by shading the sides of an article further from the light source

just be scribbling, which can be effective with crayon, etc. Generally it is a good idea to let the lines follow the texture or 'lie' of the material. This suggests to the eye the correct angle or slope of the piece and in many cases gives the impression of grain. Fig. 2 gives the idea, and it should be noted that the lines must be more or less parallel. If they are not, an undulating and cockled surface seems to be the result.

Round surfaces are suggested in pen work by parallel lines at the places

where the surface slopes away. Fig. 4 shows clearly how what is only a wheel (end on) by putting in lines at the top and the bottom.

Any shadow can be deepened by what is termed 'Cross hatching', that is taking a series of lines in the opposite direction as in (B) Fig. 3. Cross hatching, however, cannot be used with great success on round surfaces, as it generally seems to make a surface look flat.

The suggestion of the lie of surfaces by the direction of the shading lines should receive a lot of attention, especially if you want to make finished pictures of articles (as distinct from diagrams). Also study the lines that give certain impressions. The field here is very wide. Thus a lawn is shown by short vertical lines, while water is

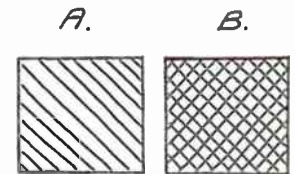


Fig. 3—Cross hatching (B) deepens the tone

indicated by fine horizontal lines with a few vertical ones to produce an idea of reflections. The lines are really there in the actual thing and what you are doing is to pick out the main ones. This, incidentally, is why drawing is such an excellent help to observation.

A contrast of thin and thick outlines can be used to bring about an appearance of relief—that is an

(Continued on page 122)

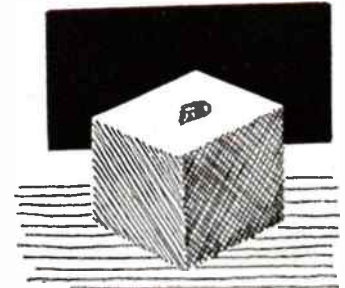


Fig. 6—How a drawing can be produced with a complete absence of 'outlines'

# How to Improve the Printing Quality of Faulty Negatives

**I**N a recent issue you were shown how to continue an interest in your hobby of photography during the winter months. In this issue it is intended to take this theme a little further and to suggest some practical experimenting of a very entertaining kind—but so simple, that even if this is your first year with a camera, and you have not had any experience of dark-room work yet, you can be quite successful and get some satisfactory results.

## Lucky Man

The photographer who secures 100 per cent negatives every time he takes the camera out is a very lucky man, in fact, there must be something uncanny in his manipulation for, unfortunately, there are so many snags to contend with. The variation of the light in calculating exposure demands an exposure meter if accuracy is to be assured, and there is also the question of whether it is possible to use the same brand of film always. Further, even the best of shutters are mechanical, and can go weak.



The result of intensifying a thin negative with redevelop intensifier

These are factors which have to be watched. They all affect the question of correct exposure, and if dealt with in a loose or haphazard way at the time, are almost certain to let us down and give faulty negatives.

Faulty negatives mean faulty prints, or, perhaps, no prints—and how often those particular negatives are the very ones you were counting on! And, of course, they can never be repeated. Well, do not destroy them, but try a little of what is generally termed 'After Treatment' as described in the following paragraphs.

There are two main processes: intensification for very thin, weak negatives, which are the result of either

under-exposure or under-development; and the other is reduction, and is applicable to those very dense negatives due to over-exposure or over-development.

Some explanation of the causes of each of these faults may help readers to understand more clearly what takes place when the remedies are applied. You all realise that the photographic image of a negative is the result of the light passing through the lens of the camera and acting on the sensitive grains of silver salt in the emulsion on the film, and that this action is revealed when the film is developed and fixed.

A perfect negative is one that has received the right exposure and has been correctly developed. If either the exposure or the development is faulty, then the image is bound to fail to reach that standard of density, detail and gradation which we all desire so much if perfect prints are to be made.

Although we are considering methods for the improvement of faulty negatives, it must not be expected that any process will produce a perfect negative from one



that is faulty initially. It can only bring about an alteration in the 'build-up' of the image and so cause it to give a better print.

Intensification, as its name implies, is the process by which the image is made denser by chemically depositing on, or materially changing the silver salt, thereby adding to the density, so that greater control is gained when printing.

## Opposite

Reduction is the complete opposite, for the action of the chemicals cuts, so to speak, across the image and removes some of the silver deposit, thereby thinning the image and making it easier to print.

There are two or three formulae for both these processes, but I never encourage readers to buy a lot of chemicals for storing on their shelves or in cupboards. Neither do I believe in trying out every process under the sun. I much prefer to suggest one that is known to be good, and, if possible, one that can be purchased in a 'ready-to-use' form of 'packet' chemicals.

## Intensification

For the intensifying process I recommend the redevelop method which is a two-bath process. After the negative has been well soaked and washed quite free from any traces of hypo, it is placed in the first bath, which in a few seconds completely bleaches the black image, leaving just a faint tracing of a yellowish colour. The negative must then be transferred to running water to remove as much as possible of the yellow stain. After this it is immersed in the redeveloping solution, which for your guidance is a metol-quinol formula. In this, the image rapidly recovers its former state and it must be allowed to remain in this solution for a further five or six minutes to allow the image to build-up and gain more density.

Another very popular form of intensifier is known as the uranium. It is in solution form requiring dilution for use. It is simple in action, presumably adding or depositing to the image and thus increasing the density by changing the original colour. With this process care must be taken to avoid excessive final washing, as too much running water tends to reduce or remove some of the colour and the intensification.

## Reduction

For the treatment of very dense or fogged negatives it is advisable to use the formula known as the Howard-Farmer solution. It is named after the man who first gave photographers the cue to reducing some of our unprintable negatives, and is a hypo-ferricyanide bath. These two chemicals will not keep active for long when mixed and it is, therefore, necessary to have a solution of each and to mix just sufficient at the time of using to get the maximum effect.

Please note that plain hypo, and not acid-fixing, must be used. Take 3½-ozs. and dissolve it in 16ozs. of water. For the second solution, take 60 grains of potassium ferricyanide and dissolve it in 16ozs. of water. Assuming that you have made up these two solutions, and intend to keep the bottles on your shelf, please label them as follows:—

**REDUCER:** Hypo Solution B.  
**REDUCER:** Ferricyanide Solution A.  
If you do not wish to go to the trouble of making the solutions, remember it is always possible to obtain these after-treatment formulae in packet form. Ask your dealer for a Johnson's Pactum Reducer.

When using the solutions, place the well washed negative in a small quantity of the A bath for about four or five minutes, according to the amount of reduction required, then immerse it in B for about the same time, and finally wash it thoroughly. If, after drying, you find that it has not had sufficient reduction, you can repeat the process.

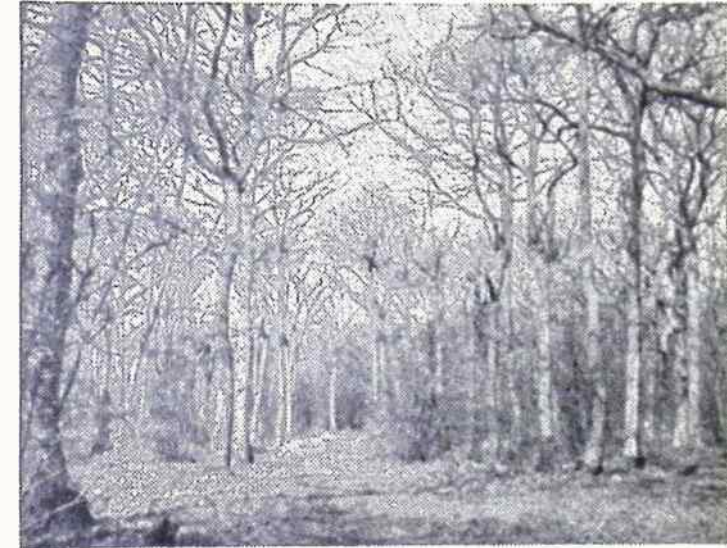
## Not Perfect

With the means at hand for improving any faulty negatives either by intensifying or reducing it will be found quite easy to get better prints from some of your collection, but do not get the impression that all your poor negatives will respond to these treatments. It is also wrong to think that any will become perfect. As already mentioned the perfect negative is the one that has had correct exposure and received correct development. Any after treatment process can only slightly overcome the result of mistakes. Nevertheless, it is always worth while trying to improve, and the experiments are interesting and the work quite fascinating on a winter's evening.

There is one final word or warning that must be given concerning both these processes. Your negatives must be completely soaked beforehand. This may mean an hour or two if the negatives are very old. If the emulsion is not generally soaked, then the action of the chemicals is likely to be patchy and this may spoil the negative.

## Other Faults

Perhaps, when examining your negatives, you have noticed one or two with faults other than density or thinness. What do you intend to do with those with a pinhole or two right in a part of the image where it shows out on a particularly nice part of the print as a conspicuous black spot? It must be remedied before printing. This is fairly simple, but needs a little care and a steady hand. A small bottle of Johnson's Spotting Medium will last the average amateur a life time, and this, with the finest artist's brush (possibly a No. 1), is all the equipment required. Lay or pin the negative face upwards on to a piece of white card so that the pin-hole can be



November in the woods. HP3 film. Midday. f8, 1/30th sec.

readily seen, shake the bottle of medium and just touch the tip of the brush on to the small end of the cork which, as a result of the shaking, is nicely coated with a layer of medium. Then, holding the brush upright, fill the hole with the tip of the brush. Another method is to sharpen to a rounded end an ordinary matchstick so that it exactly fits the pinhole and use this as if it were a brush.

## More Difficult

A scratch or series of pin-holes in a line is a much more difficult job, and requires skill. If it is a valuable negative, possibly the most satisfactory remedy is to take it to a professional photographer for his retoucher to handle. If you have the means and like to experiment, then make an enlargement and with a very sharp scalpel knife scratch away the blemish and fill in with white ink toned down to the surrounding tones of the image, take special care and do not attempt to rush the work, for if it is well done at this stage, you will be pleased with the ultimate result—which takes the form of a new negative. Yes, after the retouching is complete, the print should be copied by being photographed and a new negative made. This is the method often adopted by exhibitors who desire to remove some object from their picture

which spoils the composition, or is out-of-place.

## Finger Marks

If the negative is fairly old and the marks are really of a greasy nature allow the negative to soak for a few minutes in methylated spirit, take a wad of fine cotton wool and carefully swab the surface of the film, keeping it immersed while you do it. If the marks are not greasy but due to some other cause then plain water may remove them, but allow the emulsion to soak thoroughly and, if necessary, use the wad of cotton wool as suggested. By the way, this treatment will apply if you are not satisfied with your work of retouching as mentioned in the previous paragraph. (J.J.C.)

## EXPERTS' NEW BOOK

The opening of the Model Engineer Exhibition at the Horticultural Hall saw the launching of a new book, 'Model Making as a Career' by Thomas W. Hendrick, production manager of Cockade Ltd., the South Kensington Designers and Master Modellers. Published by Percival Marshall & Co., the book is believed to be the first of its kind dealing with model making as a full-time career.

# Attending to Outdoor Glasswork

THE writer has just re-glazed a 480 sq. ft. veranda. I was unable to get help, and felt it was a big job, as I had never done such a big span before. I tackled it in a practical way, picking up bits of information from friends in the building trade, and now feel that there is nothing in it. So far, I have no leakages!

Checking up I found that replacements amounted to about twenty-seven panes. Some panels had only chipped corners and others a nick which I knew would go before the winter. I thought, too, that glass was very expensive. My panes are stock size 24ins. by 12ins. and by buying a dozen at a time I paid only 1/3 each for heavy horticultural glass. I suggest that if you have a lot of replacements, it would pay you to buy a small crate. Glass is valuable stock and can always be used for making a small outdoor frame.

Putty was the next big item. There seems to be putty and putty, and I made sure I would get a good one. After all, your putty is the most important thing in the job. I got a 28lb. sealed keg for 14/9. I found it excellent quality, but rather thin, and this meant messy fingers as it would not bind in the hand. I added a little plaster and then found it much more pleasant to work with. I mixed it to the consistency of dough.

However you work, some sticks to your hands, and an odd piece of rough towelling was kept handy for cleaning up. Don't get putty marks all over the clean glass—it's unsightly.

My sash bars were in good repair even after twenty years of exposure to all weathers, but if these are split and beyond repair, then they should certainly be replaced. I filled in all cracks, even small ones, with plenty of putty, after running in some lead paint or priming. All sash bars should be given at least two coats of priming. This is expensive in a way, but well worth it.

In view of changeable weather

conditions I suggest that, working on your own, it is better to take out four rows at a time and get these back, than to take out a whole area of glass at once. You may not be as nimble as you used to be! I took out four runs of glass (sixteen panes—four in a run) and then the fifth run, so that I worked backwards with my shoulders between the bars.

It is not the time you take on the job that mounts up, but it's the time you take climbing up and down for this, that and the other. Here is how I worked. I made a small tray of rough wood, 18ins. by 12ins. with two rubber heels underneath. On this I had a small hammer, pincers, pliers with long nose, putty knife, brads, old chisel, thin rag and rough rag. Other tools I added as I wanted them. By this you will see that time was saved, tools prevented from rolling down the glass, and that it was easy to pick up all the tools when work stopped.

As with all craft jobs, you must work comfortably. I used two pairs of the ordinary household steps, one 4ft. 6ins. and the other 5ft. 6ins. Here you have a wide tread, which is better than being perched on the narrow rung of a ladder, you can get to any height, and paints can be set on the lower steps and not on the glass or the top of the steps you are on yourself.

Taking the glass out was a bit formidable, and I never realised that twenty-year-old putty becomes masonry. With some sharp pliers I removed all the tiny tacks; four to a panel and two at the ends to hold the glass from slipping down. Grip these brads firmly and wiggle them something like the dentist does with teeth. Pull outwards and not down on the glass. No putty should have been used on the outside surface because that practice has been dropped for years.

You may have several applications of stiff hard paint to remove. An old chisel forced into the paint and against

the sash bar will chip it off quite easily. What you do not remove this way, can be dealt with by a patent stripper, but this can be an expensive item and the more you get off with the chisel the better. Be careful of your eyes—an old pair of cheap sun glasses might make you less vulnerable to flying chippings. Remember, too, that chippings may be of glass, as well as paint oddments.

Ordinary grime will come off with turps or a good wash with some 'Tide' in warm water.

Having cleaned along the sash, try lifting the panel from underneath. Do not force it, just wait for it to move. I worked mine up from one side first. If it holds, and you bear on it, your actions will cost you another 1/3, so don't get hasty. You probably have a concealed tack-head, a lump of hard putty or a jutting knot in the wood to contend with.

Having got the glass clean, and the bars primed and painted, proceed to pack the bars with plenty of putty ready for the glass. Now take the pane of glass and gently set in position on the putty. With a rolled-up cloth ease the glass down along one side and then the other, not at the two ends, as glass is not supposed to bend mid-way. Press near to the bar and not in the centre of the glass. You will find that the glass will then settle down on a firm bedding of putty, and that at least two-thirds of the putty will squeeze out. Place the rest of the panels in and see that overlapping is flat. Add the tacks and trim off the surplus putty on top and underneath.

In a good light, check up and see that all little crevices are filled. When painting on top, run 1/4in. of paint on the glass and see that this fills right into the depth of glass. The same applies underneath. The smaller crevice will invite the rain and for some time you may have to putty up little holes.

Never putty on bare wood and let your paint dry out before puttying.(V.S.)

Above all keep the work clear, crisp and clean. Do not smudge lines or let them run one into another in an indeterminate way. See that 'the line' is always firm and that you have not gained some effect by the ink merely going faint, as this will reproduce in a blotchy and uncertain manner.

Keep the pen running freely and use only the best indian ink, and do not let it get too thick. A fairly smooth paper is good to work on, though a silky finish is quite satisfactory. The main thing is everything must work smoothly.(H.A.R.)

# How to make A Metal and Wood Tray

THIS simple tray has one unusual feature. The base is made of light metal, and so is both heat and corrosion resistant, as well as being easy to clean. Construction has been simplified throughout.

## The End Pieces

Start by cutting two identical end pieces to the proportions shown in Fig. 1. Material used should be good quality hardwood, 1/2in. thick. The actual curve of the top line is not all that important, provided it is smooth. The cut-outs for the hand grip should be well rounded on the inner edges and finished perfectly smooth by glass-papering. Other basic parts required are then shown in Fig. 2. Two of each are required, with the exception of the moulding strip. This can be of any suitable section—triangular, quarter-

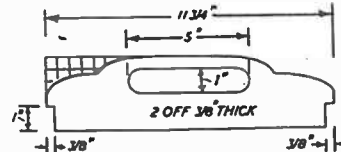


Fig. 1

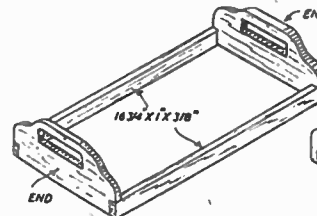


Fig. 3

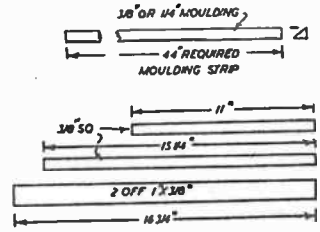


Fig. 2

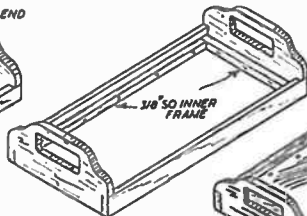


Fig. 4

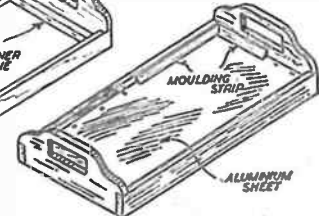


Fig. 5

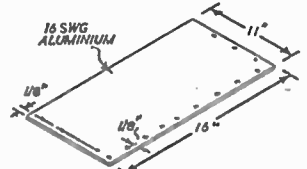
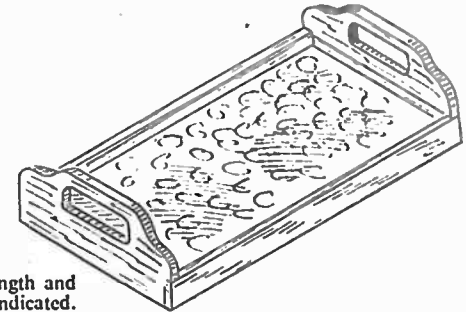


Fig. 6



material can then be cut to length and pinned and glued in place, as indicated. All pinning should be done from the inside, using 1/4in. pins or screws, so that the points do not protrude from the outside surfaces.

The base of the tray is a rectangular piece of 16 S.W.G. aluminium, as shown in Fig. 6. Along a line 1/4in. in

moulding strip to the insides of the main wooden members, this strip hiding the metal fixing screws. Finally go over the whole assembly with glasspaper, smoothing down and rounding off all sharp edges.

If the woodwork is to be stained and polished, do this before finishing the metal bottom of the tray. If the main frame is to be painted, finish the metal first.

## Finishes

There are various finishes that can be applied to the metal. A decorative effect can be given by scrubbing the metal with wire wool, working in small circles to work up spiral patterns of fine scratches. Alternatively the metal can be finished bright and clean by metal polishing, or given a 'beaten' surface by hammering all over with a peening hammer. In this case, finish the metal to a 'hammered' surface

round, and so on, and a 44ins. (total) length will be required.

## Basic Frame

Assemble the basic frame as shown in Fig. 3. The two main side pieces fit flush with the ends and can be glued and pinned in place. Make sure that the resulting assembly is quite true and square. The inner frame of 1/4in. square

from each edge drill a number of holes, lay the aluminium plate in place over the inner frame and then fasten down with small screws or nails driven through these holes into the frame members beneath. The assembly is then finished by taking the lengths of

before assembling in the wooden frame.

To prevent the bottom of the tray from scratching polished surfaces, rubber covered tacks, or small discs of rubber, secured to the underside of the frame at each corner are advised.

(R.H.W.)

# Drawing for Reproduction

(Continued from page 119)

appearance that the items are standing out from their background (see Fig. 5), the shadow, of course, being on the opposite side to the direction from which the light is supposed to be coming. Also it is interesting to note that good impressions can be secured with an entire absence of outline. Indeed, when possible, hard out lines should be avoided in pictures of

completed articles or scenes, as there are never any outlines in nature. We see everything by means of areas of various shades coming up edge to edge to one another.

There is no special pen to use for indian ink work (that being the ink you use). Choose one that suits your hand, but, naturally, a mapping pen will give a much finer line than a 'relief'.

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## MAPS ON STAMPS (II)

**A**LITTLE while ago we discussed some of the stamps which have had maps on them. Now, as there are far too many such stamps to be covered by one article, we intend to proceed further with this extremely interesting theme. Before the craze for 'Thematics' crept into the hobby of philately, a great many collectors had just that extra thrill when they procured a new specimen which was a map stamp.

### What is Needed?

We mentioned the fact last time that some of the maps that appeared were quite useless, so let us now consider what we want to find on a stamp so as to make it useful and a decided addition to a collection. First, the stamp must be accurate, or at least the map on the

from the size. Notice three pictorial means of bringing these important points to our eyes. First two wireless masts, one on either side of the map. Their use is self evident. Then, in the sea, we notice two buoys. They indicate that submarine cables come to land here.

In the centre of the island we see a picture of a turtle. This island is visited every year by the turtles which lay their eggs in the sand. So that this map stamp gives us an accurate statement of the whereabouts of the island, and also gives us sufficient hints to make us want to find out more. Compare this stamp with the air stamp from the Netherlands. This was issued in 1935, and it is hardly fair to call it a map. No scale is given and no means of finding out distances. Those two stamps show clearly what

South. Then, presumably, someone realised that this gave only part of the information, and very soon afterwards, another printing was issued on which was printed the meridian 180 degrees as well as the 178 degrees. Incidentally the first of these issues, the one without the 180 degrees, is catalogued at 30/-, while the second is only 1/-. Quite a good example of how a small thing makes a great difference to the value of a stamp.

### Fascinating

A map stamp that has quite a fascination for many people is that which was issued in 1934 by France, in order to commemorate the first Channel Crossing by air which had taken place 25 years previously. We see the route taken and the date of the flight just below the



Ascension issue—good map stamp  
Netherlands stamp, useless as a map  
Four Monarchs on a stamp showing St. Helena  
French stamp commemorating Bleriot's Channel flight

stamp must. Secondly, it must be clear and it must give some positive information, either historical or geographical. It is not desirable that a small place should be portrayed as a big place. Let us see if we can find some specimens to bear out what we have said.

Look at the first illustration, the 1d. value of the 1934 issue from Ascension. If you use a magnifying glass you will see that the parallels of latitude 7 degrees 55 minutes South and 8 degrees South are both shown, and also the meridians 14 degrees 20 minutes West and 14 degrees 25 minutes West. These facts give you good information, showing exactly where Ascension may be found on the map. Also, by means of a fairly simple calculation one can work out the size of the island. The island is rather more important than one would imagine

can be done and what can be left out.

Not so very far from Ascension is the island of St. Helena, and in 1934 a set of stamps was issued, the 1½d. value of which showed a map of the island, certain towns being clearly marked. Some of these remind us of the imprisonment of Napoleon I at Longwood. Also on this stamp there is a scale so that distances can be measured. Why four portraits, and who are they? The stamp was issued to celebrate the centenary of the British Colonization of the island, and in 1834 King William IV was on the throne.

Fiji emphasises the importance of accuracy in a peculiar way. In 1938 she issued a map stamp, the design being used for the 2d. and 6d. values. On this map she printed the meridian 178 degrees East and the latitude 18 degrees

name of the airman, Louis Bleriot 25.VII.09. Moreover, we see a picture of the machine—not one which would receive a certificate of air worthiness in these days! It really seems almost incredible that it was only in 1909 that man first flew the Channel. Today one flies to Paris with less thought than one took over a journey by rail of 100 miles in 1909.

Many stamp issuing countries of today would be quite unknown if it were not for the way in which their positions are shown to the outside world by their stamps. To name five: Tonga, Niue, Tokelau Islands, Pitcairn Islands, Galapagos Islands. One wonders how many of *Hobbies* readers would be able to say even approximately where these places were without looking

(Continued on page 126)

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**Removing Grease from Pewter**  
**DO** you know of a grease remover for pewter work? (L.H.—Boscombe).  
**ORDINARY** surface grease can be removed from pewter by washing with any good detergent, of which several proprietary brands are on the market, for example—Tide. If, however, you wish to remove the discolouration due to ageing, then more drastic treatment will be needed. For example—by brushing or rubbing with pumice powder moistened with a detergent solution or water, followed by polishing with rottenstone and water or with plate powder or rouge.

**Electric Cycle Horn**  
**I** HAVE been trying to make a small electric horn for my bicycle, but have so far had no success. Could you help me out in this? My cycle has a hub dynamo. (F.B.—Bolton).

**THE** current output of a hub dynamo is not sufficient to operate an electric horn; only weak results would be obtained even when the cycle is travelling at high speed. At lower speeds the horn would not work at all. A fairly large battery is necessary. The electrical circuit of a horn is the same as that in an electric bell or buzzer, and will be found in back issues. But instead of an armature or hammer being operated, a thin metal diaphragm is used. This frequently has a flat iron piece fixed to its centre, to increase the attractive force, and the pole of the electromagnet is situated a short distance (say,  $\frac{1}{8}$  in.) behind this. The usual contacts, as in a bell or buzzer, interrupt

the current, and the magnet thereby causes the diaphragm to vibrate. To produce a high-pitched, powerful note, a really powerful electro-magnet is necessary—say, 200 turns of 18 S.W.G. wire operated from a 6 V. battery. The diaphragm is supported round its edges only.

**Water-Spraying a Model**  
**PLEASE** explain the correct procedure for water-spraying a model plane. (D.C.—Johnstone).

**THE** correct procedure for water-spraying a model aeroplane is quite simple. Any form of atomiser is ideal. Just fill with water, hold near the model and spray a light coating all over the tissue surfaces. This will cause the tissue to sag. It also makes it very weak and care should be taken not to handle the tissue directly until dry again. When dry, the covering should pull up quite taut, ready for the application of dope. Some tissues are much stronger than others and, for tautening can be water painted instead of sprayed. Use a soft brush and apply the water with light strokes. Do not brush over parts already dampened, as the brush may stick and tear the tissue. Light structures may need to be pinned or weighted down true whilst drying to prevent warping. Rest heavy weights around the outline of the structure—never on unsupported tissue, the whole being laid out on a flat surface. Jap tissue should always be water sprayed, if possible, as this is extremely fragile in the damp state. 'Modelspan' can be brushed quite easily. When using silk or nylon covering,

water-spraying is unnecessary. The covering material in this case is applied in the damp state, drawn as taut as possible and left to dry. The secret of good covering with silk or nylon is keeping the covering damp whilst applying and drawing absolutely taut. With tissues, main aim is to eliminate wrinkles in applying. Covering need not be very taut. Subsequent drying after water-spraying will tauten it up. Never rely on dope alone to tauten covering. The main purpose of the dope is waterproofing. If dope is strong enough to draw up slack covering, it is strong enough to warp the structure.

**Almost Beyond Repair**  
**PLEASE** inform me of a solution for proofing a rubber dinghy. The air inside is coming out through minute holes in the rubber. I would also like to colour the dinghy yellow if possible. (W.B.—Seaham).

**I** AM afraid your rubber dinghy has perished and there is no satisfactory way of reproofing it as anything applied to it cannot bond with the perished rubber surface, which will give way again. Thorough painting with Dunlop S172 self-vulcanising solution might give the dinghy a little longer life.

**Sticky Matter**  
**I** SHOULD be much obliged if you could tell me how to gum paper so that on licking, it becomes adhesive. It is a mixture like that used on postage stamps which I need. (L.R.P.—Buckhurst Hill).  
**AGUM** suitable for your purpose (about 4 parts); glycerin (about 1 part); water (about 1 part or just sufficient when the ingredients are warmed, to form a thin paste). This when applied to the paper should dry fairly quickly, but when moistened becomes adhesive again. A few trials will indicate the most suitable proportions.

to take out an atlas and find the places on the map. It is not a very difficult matter, but if you are in the company of philatelists who mention places and you know nothing about them, you have not had the best out of your collection—and you might have had.  
 Furthermore, by carefully looking at the stamps, one can find out a considerable amount about a place; what the natives look like, what the chief crops or products may be, and so on. Yes, and by looking at illustrations of the houses the people live in, you should be able to judge something about the climate of the area. What a lot there is in a stamp album if one only looks for it? (L.P.V.V.)

## Maps on Stamps (II)

(Continued from page 124)

at a map? The stamps, if you have them, will tell you just where you need to look when you take out the atlas.  
 The 4d. value of the Tonga Islands stamp, issued to commemorate the Treaty of Friendship, shows a map of the Pacific Ocean with these islands marked. There are two meridians and two parallels marked. There is also a very clear scale, and a blank map of England is shown for comparison. Tokelau Island's three stamps are the 4d., 1d. and 2d. The 4d. shows the

island of Atafu, the 1d. Nukunono Island, and the 2d. Fakaofu Island. Each of these is a very small island, but each appears on the group on the 4d. stamp. The same may be said of the other stamps mentioned above—Niue and Galapagos, etc.  
 We have not nearly sufficient space to mention all the maps, and really it is not desirable that we should. It is far more fun to look through your own collection and find stamps that have not been mentioned here. The thing to do then is



# Build this beautiful DOLL'S HOUSE for your daughter

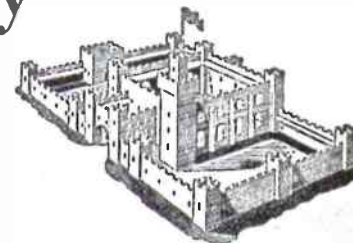
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**52/4**  
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Any handyman will enjoy making one of these doll's houses from Hobbies kit No. 2910. The completed house is 1ft. 5ins. wide and 1ft. 4ins. high. Everything necessary to build it is included in the kit—wood, metal 'open and close' windows, door, staircase, chimneys, hinges, catches and covering paper for inside and outside. And, of course, complete detailed instructions that anyone can follow. Other doll's house kits are described in the booklet mentioned below.

## or a grand fort for the boy

This sturdy Fort is truly the boy's answer to his sister's Doll's House, and will keep him (and his father!) amused for hours on end. Assembled for use, it is 36ins. wide, 27ins. deep and 21ins. high, but packs for storage to 18ins. wide, 14ins. deep and 13ins. high. Kit is complete with all necessary materials and instructions.

Kit 248  
 Special  
**57/-**



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Hobbies kits and tools are obtained at good stores, Hobbies branches in London, Glasgow, Manchester, Birmingham, Sheffield, Leeds, Hull, Bristol and Southampton, or carriage paid from Hobbies Ltd., Dept. 99, Dereham, Norfolk. Illustrated two-colour booklet of complete range FREE on request.

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## STOP SMOKING

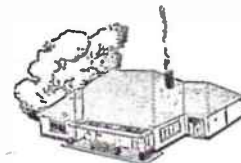
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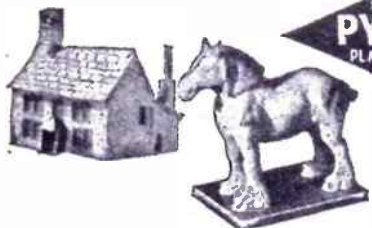
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